Service Hints

Plasma Television

<PDP 2010 Model>
TH-P65/54/50VT20Z
TH-P54/50/46/42V20Z
TH-P65/58S20Z
TH-P50/46/42U20Z
TH-P50/42X20Z

TH-P65VT20Z

Troubleshooting Guide

- Ver 1.0-

This service hints is published for technicians and engineers for repair.
And it gives you the information how to judge the defective board of PDP.
In the future,we will improve the contents for more easy diagnostic and troubleshooting.

Please file and use this Service Hints together with the main service manual and other publications related to models.

⚠ WARNING

Panasonic®

Contents

1. 2010 PDP Line up & Feature Comparison

1. 2010 PDP Line up & Feature Comparison

		VT20 series	V20 series	S20 series	U20 series	X20 series
Picture	Size	65/54/50	54/50/46/42	65/58	50/46/42	50/42
	Full HD 3D	Y	—	—	—	—
	Contrast Ratio	5,000,000:1	5,000,000:1	2,000,000:1	2,000,000:1	2,000,000:1
	Moving Picture Resolution	1080 lines	1080 lines	1080 lines	900 lines	720 lines
	600 Hz Sub-field Drive	Y	Y	Y	Y	Y
	24p Smooth Film/Playback	Y/Y	Y/Y	Y/Y	N/Y	N/Y
	Shades of Gradation	6,144	6,144	6,144	6,144	4,096
	Deep Colour (10/12-bit)	Y	Y	—	—	—
	THX Mode	Y	—	—	—	—
	Resolution Enhancer	Y	Y	—	—	—
	ISFccc	Y	Y	—	—	—
Sound	Speakers	Woofer/Full-range	Full-range	Full-range	Full-range	Full-range
	Virtual Surround	V-Audio ProSurround	V-Audio ProSurround	V-Audio Surround	V-Audio	V-Audio
Networking	USB	2	2	1	—	—
	HDMI Input	4 (1 side, 3 rear)	4 (1 side, 3 rear)	3 (1 side, 2 rear)	3 (1 side, 2 rear)	3 (1 side, 2 rear)
	Support Feature	ARC(Input 2)/3D(Input 2)	ARC(Input 2)	ARC(Input 2)	ARC(Input 2)	ARC(Input 2)
	PC Input	Y	Y	Y	Y	Y
	LAN Port	Y	Y	—	—	—
	VIERA CAST	Y	Y	—	—	—
	DLNA	Y	Y	—	—	—
Others	Swivel	Y (except 65)	Y (except 54)	—	Y	Y

2. PCB Location & Function

TH-P65VT20Z
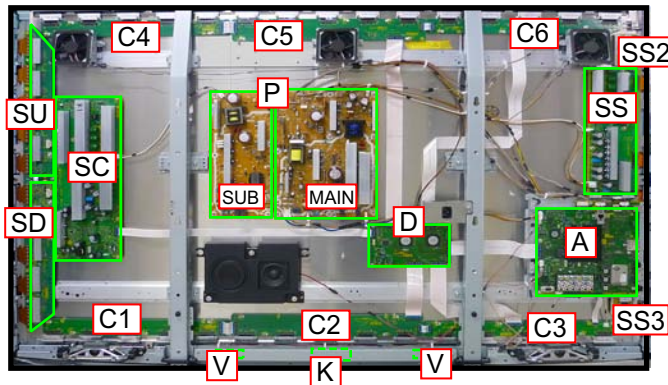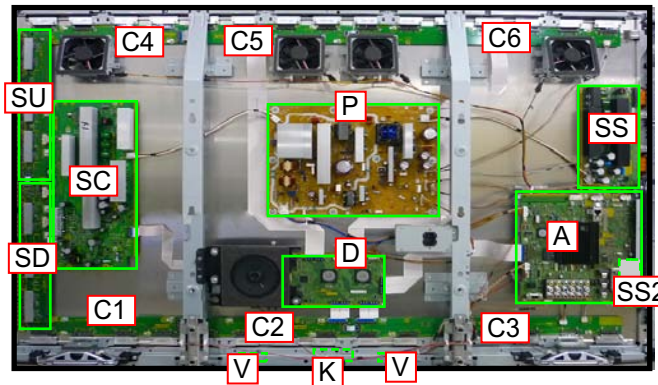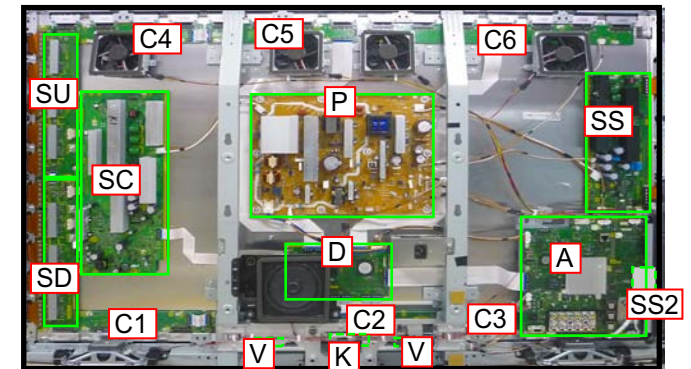
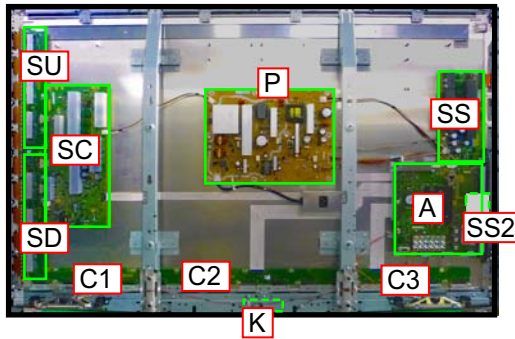| Board Name	Function	Parts Number
P	Power Supply (MAIN)	ETX2MM813MDM
	Power Supply (SUB)	ETX2MM813MDS
A	DC-DC Converter, Tuner, Speaker out, AV Terminal, HDMI in, SD Card, PC in, Digital Signal Processor, PEAKS-LDA2, Power Switch, Key Switch	TZTNP01LUUZ
K	Remote receiver, Power LED, C.A.T.S sensor, SD LED	TNPA5113AB
V	3D Eyewear transmitter	TNPA5148
D	Format Converter, Plasma AI, Sub-Field Processor	TZTNP01LSUM
C1	Data Driver (Lower Right)	TNPA5178
C2	Data Driver (Lower Center)	TNPA5179
C3	Data Driver (Lower Left)	TNPA5180
C4	Data Driver (Upper Right)	TNPA5181
C5	Data Driver (Upper Center)	TNPA5182
C6	Data Driver (Upper Left)	TNPA5183
SC	Scan Drive	TXNSC1LPUJ
SS	Sustain Drive	TXNSS1LCUE
SS2	Sustain out (Upper)	TNPA4983
SS3	Sustain out (Lower)	TNPA4984
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TNPA5184AB
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TNPA5185AB

TH-P54VT20Z

Board Name	Function	Parts Number
P	Power Supply	ETX2MM807MVH
A	DC-DC Converter, Tuner, Speaker out, AV Terminal, HDMI in, SD Card, PC in, Digital Signal Processor, PEAKS-LDA2, Power Switch, Key Switch	TZTNP01LVUZ
K	Remote receiver, Power LED, C.A.T.S sensor, SD LED	TNPA5113AB
V	3D Eyewear transmitter	TNPA5148
D	Format Converter, Plasma AI, Sub-Field Processor	TZTNP01LVUA
C1	Data Driver (Lower Right)	TNPA5102
C2	Data Driver (Lower Center)	TNPA5103
C3	Data Driver (Lower Left)	TNPA5140
C4	Data Driver (Upper Right)	TNPA5154
C5	Data Driver (Upper Center)	TNPA5155
C6	Data Driver (Upper Left)	TNPA5156
SC	Scan Drive	TXNSC1LVUA
SS	Sustain Drive	TXNSS1LVUA
SS2	Sustain out (Lower)	TNPA4804
—		
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TNPA5092AB
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TNPA5093AB

TH-P50VT20Z

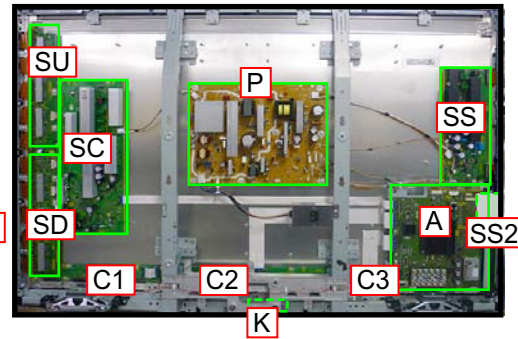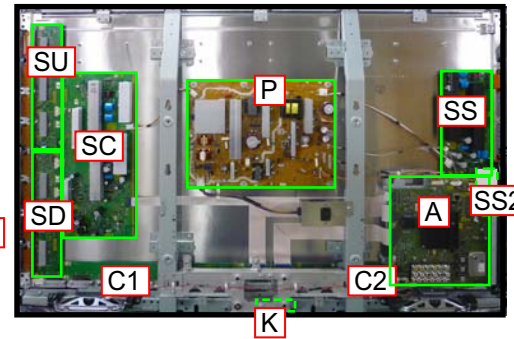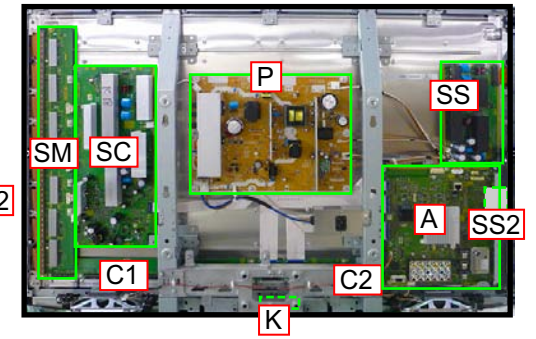| Board Name	Function	Parts Number
P	Power Supply	ETX2MM806MVH
A	DC-DC Converter, Tuner, Speaker out, AV Terminal, HDMI in, SD Card, PC in, Digital Signal Processor, PEAKS-LDA2, Power Switch, Key Switch	TZTNP01LLUZ
K	Remote receiver, Power LED, C.A.T.S sensor, SD LED	TNPA5113AB
V	3D Eyewear transmitter	TNPA5148
D	Format Converter, Plasma AI, Sub-Field Processor	TZTNP01LJUM
C1	Data Driver (Lower Right)	TNPA5099
C2	Data Driver (Lower Center)	TNPA5100
C3	Data Driver (Lower Left)	TNPA5137
C4	Data Driver (Upper Right)	TNPA5151
C5	Data Driver (Upper Center)	TNPA5152
C6	Data Driver (Upper Left)	TNPA5153
SC	Scan Drive	TXNSC11VEK
SS	Sustain Drive	TXNSS11VEK
SS2	Sustain out (Lower)	TNPA4804
—		
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TNPA5090AB
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TNPA5091AB

2. PCB Location & Function

TH-P54V20Z

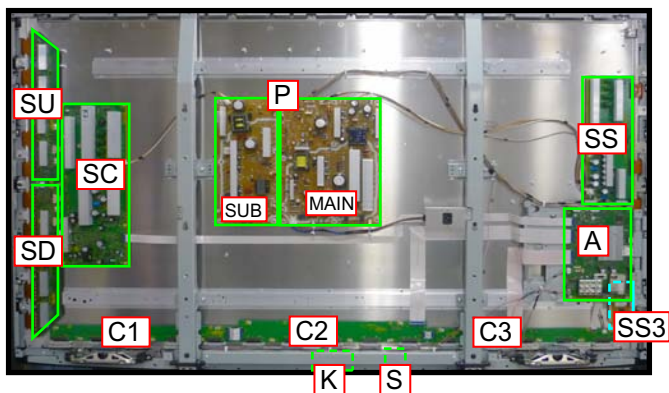| Board Name	Function	Parts Number
P	Power Supply	ETX2MM807MSL
A	DC-DC Converter, Tuner, Speaker out, AV Terminal, HDMI in, SD Card, PC in, Digital Signal Processor, PEAKS-LDA2, Format Converter, Plasma AI, Sub-Field Processor, Power Switch, Key Switch	TZTNP01LNUZ
K	Remote receiver, Power LED, C.A.T.S sensor	TNPA5114
C1	Data Driver (Lower Right)	TNPA5102
C2	Data Driver (Lower Center)	TNPA5103
C3	Data Driver (Lower Left)	TNPA5104
SC	Scan Drive	TXNSC1LCUM
SS	Sustain Drive	TXNSS1LCUM
SS2	Sustain out (Lower)	TNPA4804
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TNPA5092
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TNPA5093
—		

TH-P50V20Z

Board Name	Function	Parts Number
P	Power Supply	ETX2MM806MSL
A	DC-DC Converter, Tuner, Speaker out, AV Terminal, HDMI in, SD Card, PC in, Digital Signal Processor, PEAKS-LDA2, Format Converter, Plasma AI, Sub-Field Processor, Power Switch, Key Switch	TXN/A1LHUZ50
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1LAUT42
C1	Data Driver (Lower Right)	TNPA5099
C2	Data Driver (Lower Center)	TNPA5100
C3	Data Driver (Lower Left)	TNPA5101
SC	Scan Drive	TXNSC11QEK50
SS	Sustain Drive	TXNSS1LBUT50
SS2	Sustain out (Lower)	TNPA4804
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TNPA5090
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TNPA5091
—		

TH-P46V20Z

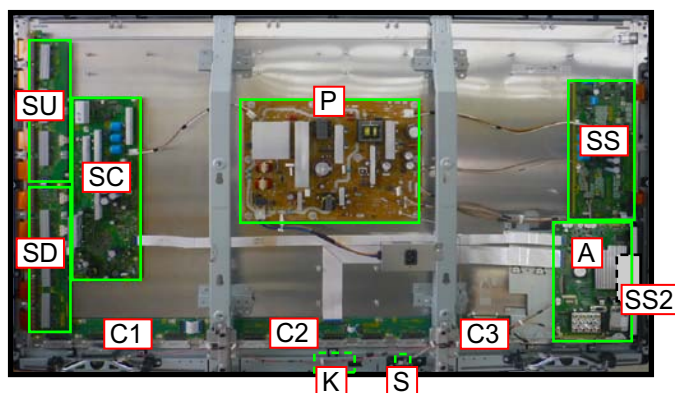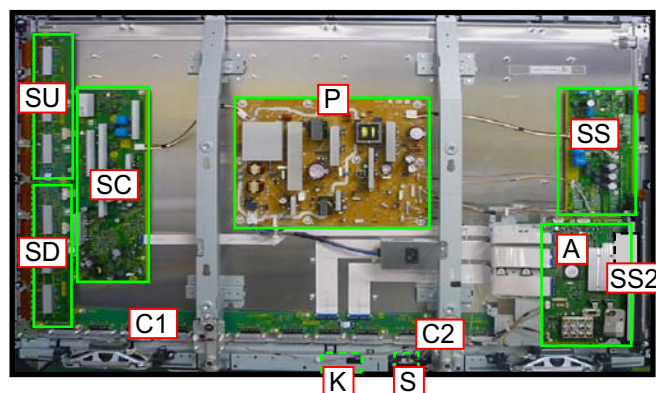| Board Name	Function	Parts Number
P	Power Supply	ETX2MM805MSL
A	DC-DC Converter, Tuner, Speaker out, AV Terminal, HDMI in, SD Card, PC in, Digital Signal Processor, PEAKS-LDA2, Format Converter, Plasma AI, Sub-Field Processor, Power Switch, Key Switch	TXN/A1LEUZ46
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1LAUT42
C1	Data Driver (Lower Right)	TNPA5096
C2	Data Driver (Lower Left)	TNPA5097
—		
SC	Scan Drive	TXNSC1LEUZ46
SS	Sustain Drive	TXNSS1LEUZ46
SS2	Sustain out (Lower)	TNPA4802
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TNPA5088
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TNPA5089
—		

TH-P42V20Z

Board Name	Function	Parts Number
P	Power Supply	LSEP1289WTHB
A	DC-DC Converter, Tuner, Speaker out, AV Terminal, HDMI in, SD Card, PC in, Digital Signal Processor, PEAKS-LDA2, Format Converter, Plasma AI, Sub-Field Processor, Power Switch, Key Switch	TXN/A1LAUZ42
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1LAUT42
C1	Data Driver (Lower Right)	TNPA5094
C2	Data Driver (Lower Left)	TNPA5095
—		
SC	Scan Drive	TXNSC11NEK42
SS	Sustain Drive	TXNSS1LAUT42
SS2	Sustain out (Lower)	TNPA4802
—		
—		
SM	Scan outNon serviceable. SM-Board should be exchanged for service.	TNPA5086

TH-P65S20Z

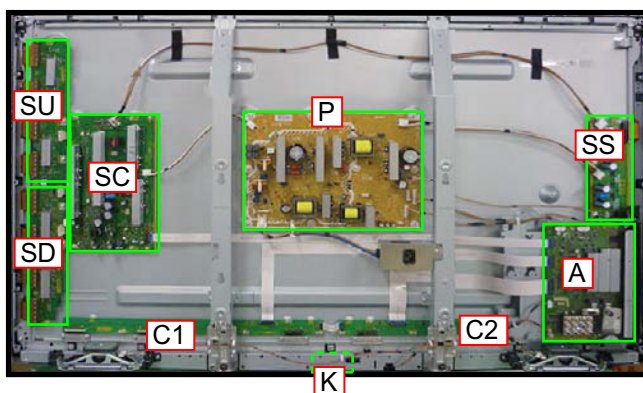| Board Name	Function	Parts Number
P	Power Supply (MAIN)	ETX2MM813MSM
	Power Supply (SUB)	ETX2MM813MSS
A	DC-DC Converter, Tuner, Speaker out, AV Terminal, HDMI in, SD Card, Digital Signal Processor, PEAKS-sLD, Format Converter, Plasma AI, Sub-Field Processor, Key Switch	TZTNP01LTUZ
S	Power Switch	TNPA4858AB
K	Remote receiver, Power LED, C.A.T.S sensor	TNPA5143AB
C1	Data Driver (Lower Right)	TNPA5178
C2	Data Driver (Lower Center)	TNPA5179
C3	Data Driver (Lower Left)	TNPA5180
SC	Scan Drive	TXNSC1LEUM
SS	Sustain Drive	TXNSS1LEUM
—		
SS3	Sustain out (Lower)	TNPA4984
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TNPA5184
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TNPA5185

TH-P58S20Z
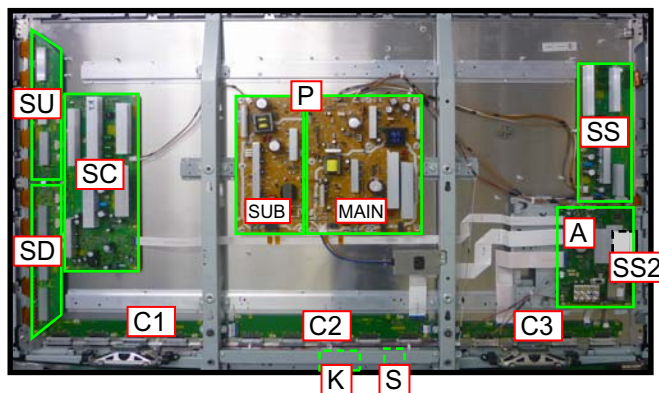
Board Name	Function	Parts Number
P	Power Supply (MAIN)	ETX2MM812MSM
	Power Supply (SUB)	ETX2MM812MSS
A	DC-DC Converter, Tuner, Speaker out, AV Terminal, HDMI in, SD Card, Digital Signal Processor, PEAKS-sLD, Format Converter, Plasma AI, Sub-Field Processor, Key Switch	TZTNP01LRUZ
S	Power Switch	TNPA4858AB
K	Remote receiver, Power LED, C.A.T.S sensor	TNPA5143AB
C1	Data Driver (Lower Right)	TNPA5167
C2	Data Driver (Lower Center)	TNPA5168
C3	Data Driver (Lower Left)	TNPA5169
SC	Scan Drive	TXNSC1LDUM
SS	Sustain Drive	TXNSS1LDUM
SS2	Sustain out (Lower)	TNPA4980
—		
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TNPA5173
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TNPA5174

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TH-P50U20Z
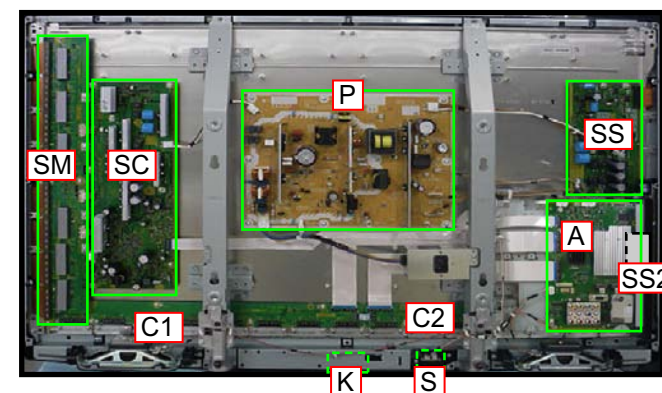
Board Name	Function	Parts Number
P	Power Supply	ETX2MM806MEH
A	DC-DC Converter, Tuner, Speaker out, AV Terminal, HDMI in, SD Card, Digital Signal Processor, PEAKS-sLD,Format Converter, Plasma AI, Sub-Field Processor, Key Switch	TXN/A1LKUZ50
S	Power Switch	TNPA4858AB
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1LEUT42
C1	Data Driver (Lower Right)	TNPA5099
C2	Data Driver (Lower Center)	TNPA5100
C3	Data Driver (Lower Left)	TNPA5101
SC	Scan Drive	TXNSC11FEK50
SS	Sustain Drive	TXNSS11FEK50
SS2	Sustain out (Lower)	TNPA4804
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TXNSU11FEK50
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TXNSD11FEK50
—	——————	——————

TH-P46U20Z

Board Name	Function	Parts Number
P	Power Supply	ETX2MM805MEH
A	DC-DC Converter, Tuner, Speaker out, AV Terminal, HDMI in, SD Card, Digital Signal Processor, PEAKS-sLD,Format Converter, Plasma AI, Sub-Field Processor, Key Switch	TXN/A1LGUZ46
S	Power Switch	TNPA4858AB
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1LEUT42
C1	Data Driver (Lower Right)	TNPA5096
C2	Data Driver (Lower Left)	TNPA5097
—	——————	——————
SC	Scan Drive	TXNSC1LDUT46
SS	Sustain Drive	TXNSS1LDUT46
SS2	Sustain out (Lower)	TNPA4802
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TXNSU1LGUA46
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TXNSD1LGUA46
—	——————	——————

TH-P42U20Z

Board Name	Function	Parts Number
P	Power Supply	LSEP1287BEHB
A	DC-DC Converter, Tuner, Speaker out, AV Terminal, HDMI in, SD Card, Digital Signal Processor, PEAKS-sLD,Format Converter, Plasma AI, Sub-Field Processor, Key Switch	TXN/A1LCUZ42
S	Power Switch	TXN/S1LEUT42
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1LEUT42
C1	Data Driver (Lower Right)	TNPA5094
C2	Data Driver (Lower Left)	TNPA5095
—	——————	——————
SC	Scan Drive	TXNSC11DEK42
SS	Sustain Drive	TXNSS11DEK42
SS2	Sustain out (Lower)	TNPA4802
—	——————	——————
—	——————	——————
SM	Scan out Non serviceable. SM-Board should be exchanged for service.	TXNSM11DEK42

TH-P50X20Z
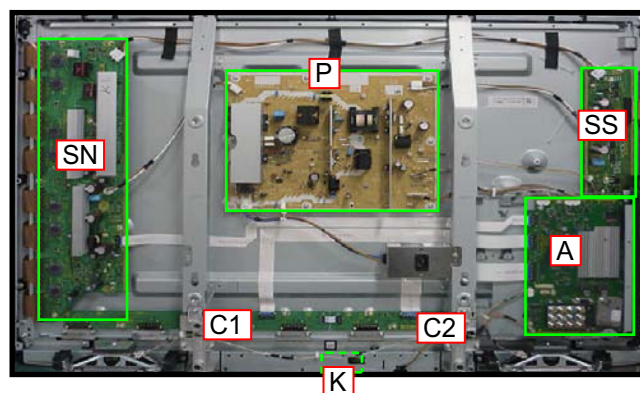
Board Name	Function	Parts Number
P	Power Supply Non serviceable. P-Board should be exchanged for service.	N0AE5JK00002
A	DC-DC Converter, Tuner, Speaker out, AV Terminal, HDMI in, SD Card, Digital Signal Processor, PEAKS-sLD,Format Converter, Plasma AI, Sub-Field Processor, Power Switch, Key Switch	TXN/A1LMUZ50
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1LHUT42
C1	Data Driver (Lower Right)	TXNC111CEK50
C2	Data Driver (Lower Left)	TXNC211CEK50
SC	Scan Drive	TXNSC11CEK50
SS	Sustain Drive	TXNSS11CEK50
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TXNSU11CEK50
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TXNSD11CEK50
—		

TH-P42X20Z

Board Name	Function	Parts Number
P	Power Supply	LSEP1287LEHB
A	DC-DC Converter, Tuner, Speaker out, AV Terminal, HDMI in, SD Card, Digital Signal Processor, PEAKS-sLD,Format Converter, Plasma AI, Sub-Field Processor, Power Switch, Key Switch	TXN/A1LDUZ42SV
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1LHUT42
C1	Data Driver (Lower Right)	TXNC111BEK42
C2	Data Driver (Lower Left)	TXNC211BEK42
—		
SS	Sustain Drive	TXNSS11BEK42
—		
—		
SN	Scan Drive	TXNSN11BEK42

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3. PCB List

3. PCB List

Board	VT20 series			V20 series				S20 series		U20 series			X20 series	
	TH-P65VT20Z	TH-P54VT20Z	TH-P50VT20Z	TH-P54V20Z	TH-P50V20Z	TH-P46V20Z	TH-P42V20Z	TH-P65S20Z	TH-P58S20Z	TH-P50U20Z	TH-P46U20Z	TH-P42U20Z	TH-P50X20Z	TH-P42X20Z
P	ETX2MM813MDM	ETX2MM807MVH	ETX2MM806MVH	ETX2MM807MSL	ETX2MM806MSL	ETX2MM805MSL	LSEP1289WTHB	ETX2MM813MSM	ETX2MM812MSM	ETX2MM806MEH	ETX2MM805MEH	LSEP1287BEHB	N0AE5JK00002	LSEP1287LEHB
	ETX2MM813MDS	----	----	----	----	----	----	ETX2MM813MSS	ETX2MM812MSS	----	----	----	----	----
A	TZTNP01LUUZ	TZTNP01LVUZ	TZTNP01LLUZ	TZTNP01LNUZ	TXN/A1LHUZ50	TXN/A1LEUZ46	TXN/A1LAUZ42	TZTNP01LTUZ	TZTNP01LRUZ	TXN/A1LKUZ50	TXN/A1LGUZ46	TXN/A1LCUZ42	TXN/A1LMUZ50	TXN/A1LDUZ42SV
S	----	----	----	----	----	----	----	TNPA4858AB	TNPA4858AB	TNPA4858AB	TNPA4858AB	TXN/S1LEUT42	----	----
K	TNPA5113AB	TNPA5113AB	TNPA5113AB	TNPA5114	TXN/K1LAUT42	TXN/K1LAUT42	TXN/K1LAUT42	TNPA5143AB	TNPA5143AB	TXN/K1LEUT42	TXN/K1LEUT42	TXN/K1LEUT42	TXN/K1LHUT42	TXN/K1LHUT42
V	TNPA5148	TNPA5148	TNPA5148	----	----	----	----	----	----	----	----	----	----	----
D	TZTNP01LSUM	TZTNP01LVUA	TZTNP01LJUM	----	----	----	----	----	----	----	----	----	----	----
C1	TNPA5178	TNPA5102	TNPA5099	TNPA5102	TNPA5099	TNPA5096	TNPA5094	TNPA5178	TNPA5167	TNPA5099	TNPA5096	TNPA5094	TXNC111CEK50	TXNC111BEK42
C2	TNPA5179	TNPA5103	TNPA5100	TNPA5103	TNPA5100	TNPA5097	TNPA5095	TNPA5179	TNPA5168	TNPA5100	TNPA5097	TNPA5095	TXNC211CEK50	TXNC211BEK42
C3	TNPA5180	TNPA5140	TNPA5137	TNPA5104	TNPA5101	----	----	TNPA5180	TNPA5169	TNPA5101	----	----	----	----
C4	TNPA5181	TNPA5154	TNPA5151	----	----	----	----	----	----	----	----	----	----	----
C5	TNPA5182	TNPA5155	TNPA5152	----	----	----	----	----	----	----	----	----	----	----
C6	TNPA5183	TNPA5156	TNPA5153	----	----	----	----	----	----	----	----	----	----	----
SC	TXNSC1LPUJ	TXNSC1LVUA	TXNSC11VEK	TXNSC1LCUM	TXNSC11QEK50	TXNSC1LEUZ46	TXNSC11NEK42	TXNSC1LEUM	TXNSC1LDUM	TXNSC11FEK50	TXNSC1LDUT46	TXNSC11DEK42	TXNSC11CEK50	----
SS	TXNSS1LCUE	TXNSS1LVUA	TXNSS11VEK	TXNSS1LCUM	TXNSS1LBUT50	TXNSS1LEUZ46	TXNSS1LAUT42	TXNSS1LEUM	TXNSS1LDUM	TXNSS11FEK50	TXNSS1LDUT46	TXNSS11DEK42	TXNSS11CEK50	TXNSS11BEK42
SS2	TNPA4983	TNPA4804	TNPA4804	TNPA4804	TNPA4804	TNPA4802	TNPA4802	----	TNPA4980	TNPA4804	TNPA4802	TNPA4802	----	----
SS3	TNPA4984	----	----	----	----	----	----	TNPA4984	----	----	----	----	----	----
SU	TNPA5184AB	TNPA5092AB	TNPA5090AB	TNPA5092	TNPA5090	TNPA5088	----	TNPA5184	TNPA5173	TXNSU11FEK50	TXNSU1LGUA46	----	TXNSU11CEK50	----
SD	TNPA5185AB	TNPA5093AB	TNPA5091AB	TNPA5093	TNPA5091	TNPA5089	----	TNPA5185	TNPA5174	TXNSD11FEK50	TXNSD1LGUA46	----	TXNSD11CEK50	----
SM	----	----	----	----	----	----	TNPA5086	----	----	----	----	TXNSM11DEK42	----	----
SN	----	----	----	----	----	----	----	----	----	----	----	----	----	TXNSN11BEK42

4. Block Diagram
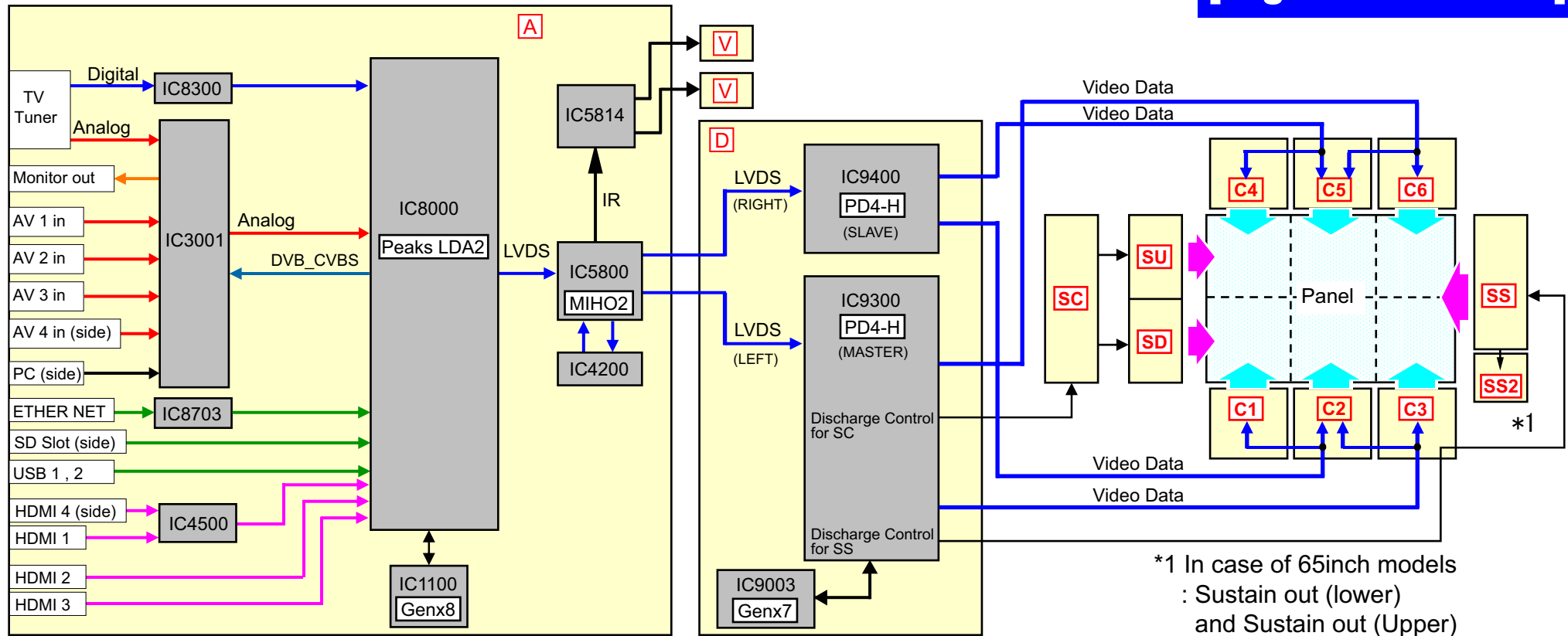
<PCB Function>

[e.g. TH-P50VT20Z]

IC8300
  : Front End Processor
IC3001
  : AV Switch
IC8703
  : ETHER NET I/F
IC4500
  : HDMI EQUALIZER

IC8000
  : Peaks LDA2 (Digital Video Processor)
IC5800
  : MIHO2 (3D Video Processor)
IC4200
  : FRCS
IC5814
  : 3D EYEWEAR DRIVER
IC1100
  : Genx8 (SYSTEM MPU)

IC9300
  : PD4-H (MASTER)
IC9400
  : PD4-H (SLAVE)
    Sub Field Processor,
    Data Driver Processor
    Plasma AI
IC9003
  : Genx7 (Panel Micom)

*1 In case of 65inch models
  : Sustain out (lower)
    and Sustain out (Upper)
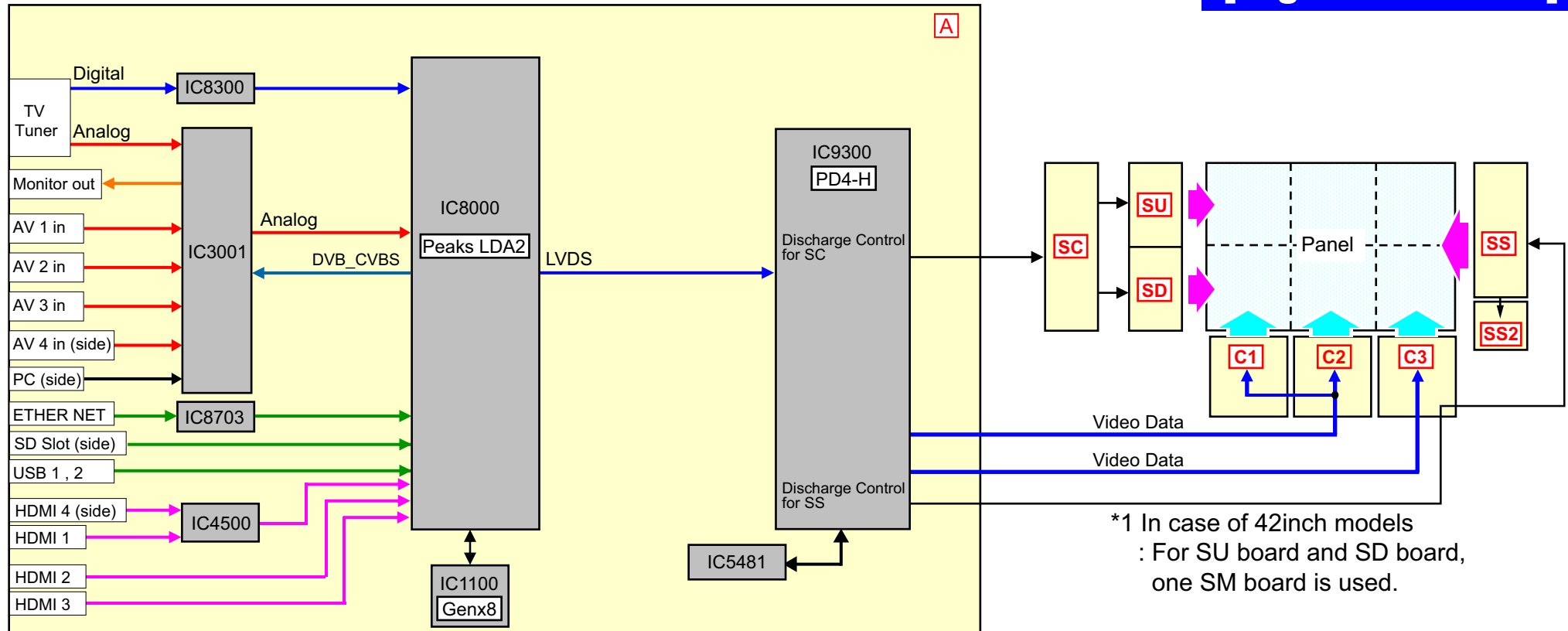
\<PCB Function\>

[e.g. TH-P50V20Z]

*1 In case of 42inch models
 : For SU board and SD board,
   one SM board is used.

IC8300
  : **Front End Processor**
IC3001
  : **AV Switch**
IC8703
  : **ETHER NET I/F**
IC4500
  : **HDMI EQUALIZER**

IC8000
  : **Peaks LDA2 (Digital Video Processor)**
IC1100
  : **Genx8 (SYSTEM MPU)**

IC9300
  : **PD4-H**
    Sub Field Processor,
    Data Driver Processor
    Plasma AI
IC5481
  : **ANALOG-ASIC**

<PCB Function>

[e.g. TH-P58S20Z]

IC8300
  : Front End Processor
IC3000
  : AV Switch

IC8001
  : Peaks sLD (Digital Video Processor)
   (Genx : SYSTEM MPU)

IC9300
  : PD4-H
   Sub Field Processor,
   Data Driver Processor
   Plasma AI
IC5000
  : ANALOG-ASIC

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<PCB Function>

[e.g. TH-P50U20Z]

A

TV Tuner

Digital → IC8300 →

Analog →

Monitor out ←

AV 1 in →

AV 2 in → IC3000

AV 3 in →

PC in →

SD Slot (side) →

HDMI 1 →

HDMI 2 →

HDMI 3 →

IC8001

Peaks sLD

Analog →

DVB_CVBS ←

LVDS →

IC9300

PD4-H

Discharge Control for SC

Discharge Control for SS

IC5000

SC

SU

SD

Panel

SS

SS2

C1 C2 C3

Video Data

Video Data

*1 In case of 42inch models
  : For SU board and SD board,
   one SM board is used.

IC8300
  : Front End Processor
IC3000
  : AV Switch

IC8001
  : Peaks sLD (Digital Video Processor)
   (Genx : SYSTEM MPU)

IC9300
  : PD4-H
   Sub Field Processor,
   Data Driver Processor
   Plasma AI
IC5000
  : ANALOG-ASIC

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<PCB Function>
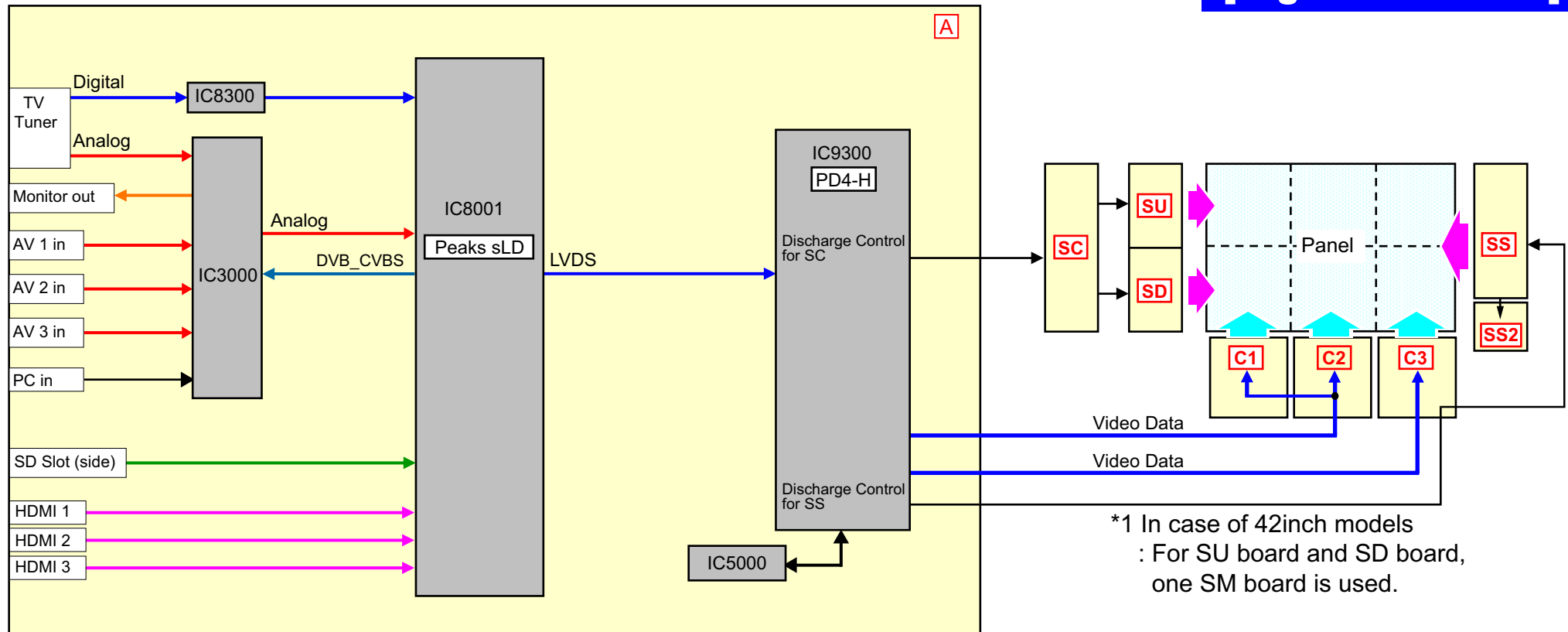
[e.g. TH-P50X20Z]

IC8300
  : Front End Processor
IC3000
  : AV Switch

IC8001
  : Peaks sLD (Digital Video Processor)
    (Genx : SYSTEM MPU)

IC9300
  : PD4-H
    Sub Field Processor,
    Data Driver Processor
    Plasma AI
IC5000
  : ANALOG-ASIC

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5. Troubleshooting

How to locatea possible defective board in relation to picture trouble area.

[In case of VT20 series]
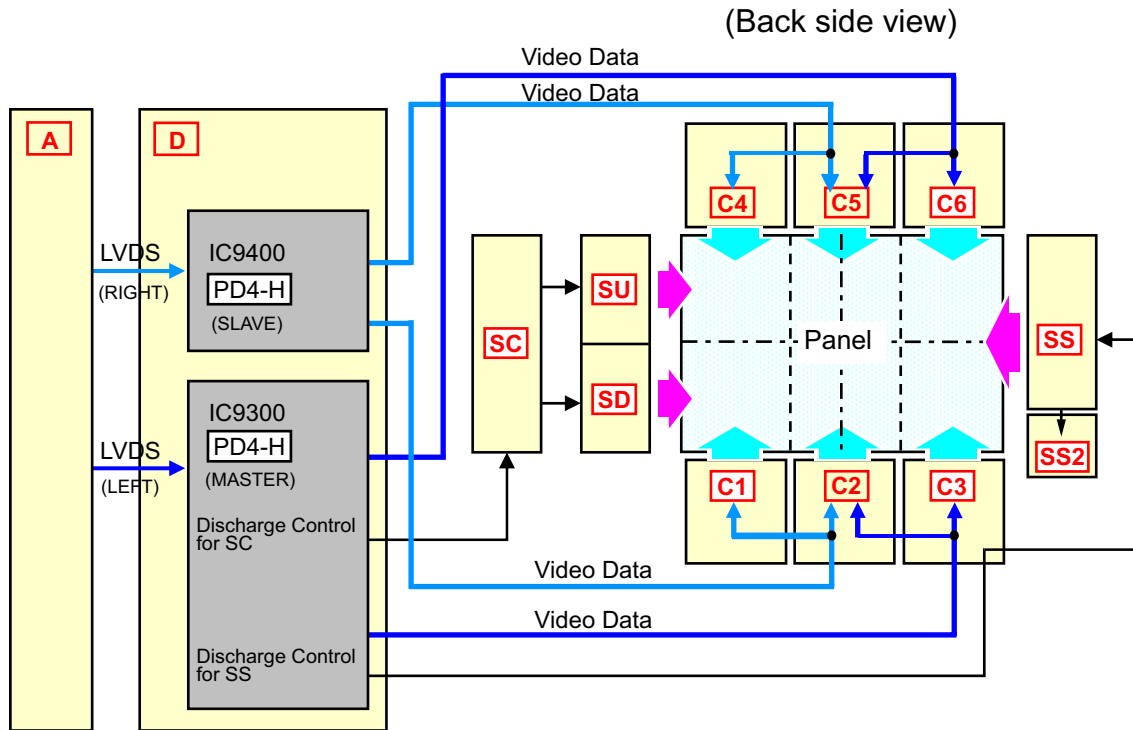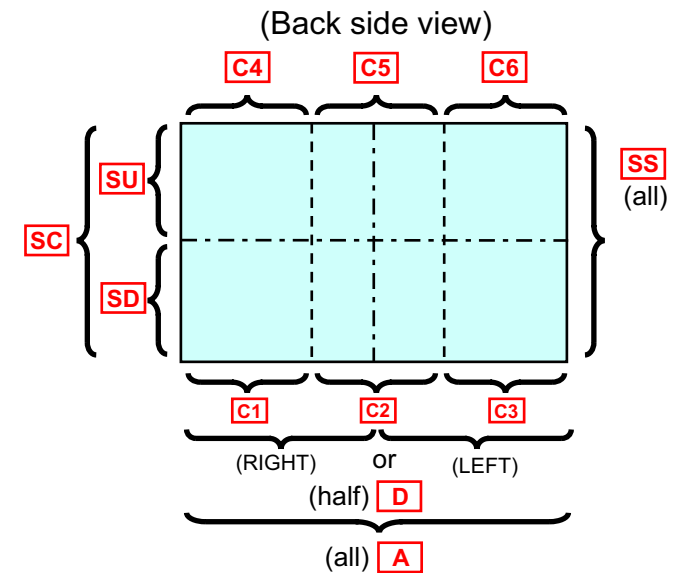
<Display device block diagram>

<Defective board in relation to picture trouble area >

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How to locatea possible defective board in relation to picture trouble area.   [In case of V20,S20,U20 series]

<Display device block diagram>

<Defective board in relation to picture trouble area >

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How to locatea possible defective board in relation to picture trouble area.　　[In case of X20 series]

<Display device block diagram>

<Defective board in relation to picture trouble area >
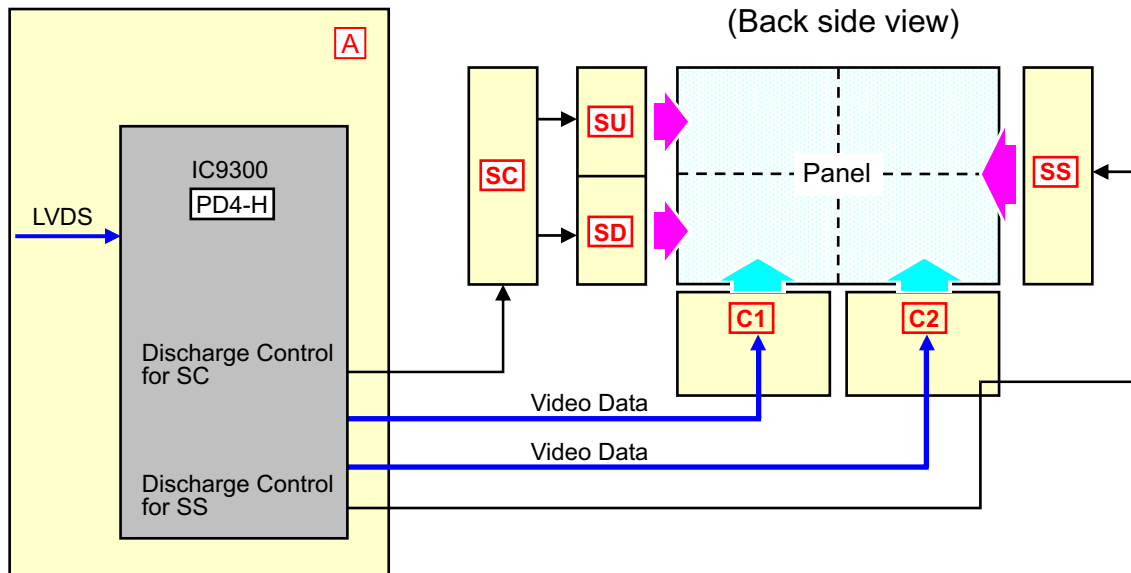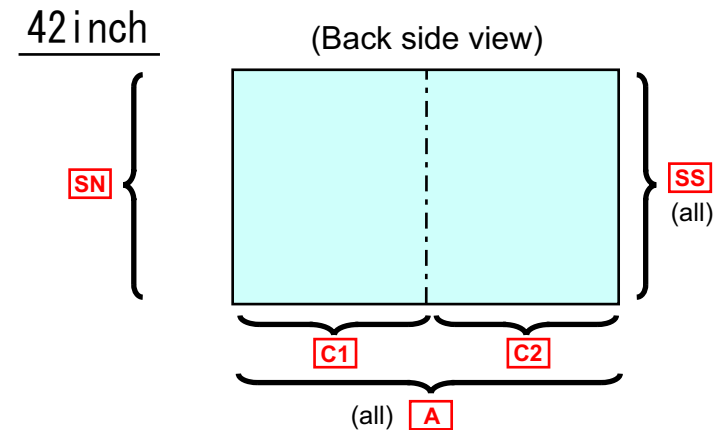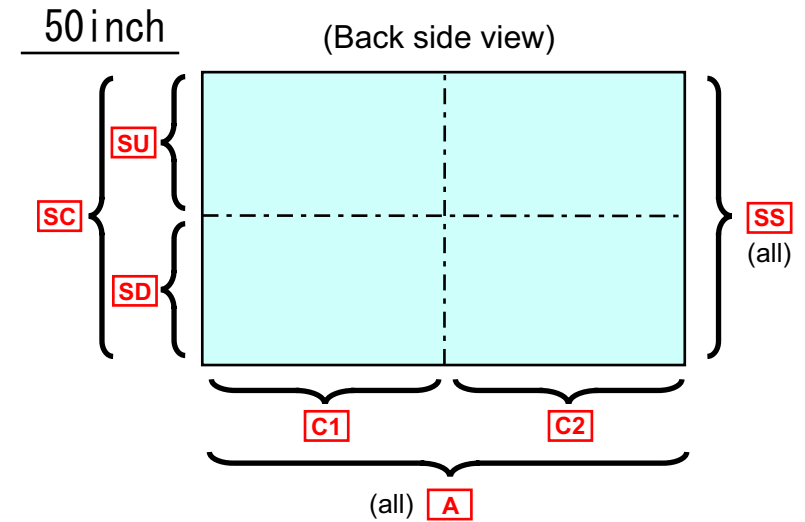
SC/SU/SD-board change to one SN-board.

[In case of VT20 series]
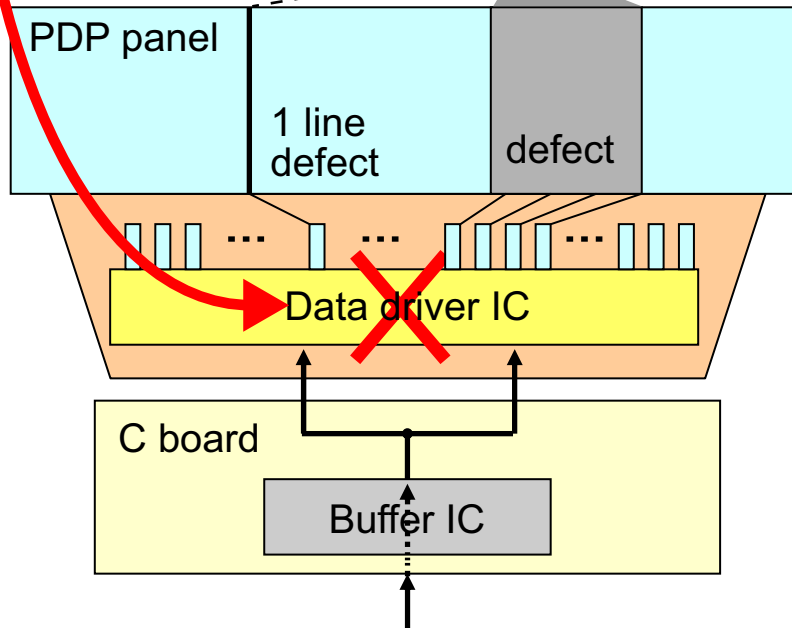
| PDP panel defective (Data driver IC defective) | Data driver IC or C or D board defective |

Width is narrower than FPC
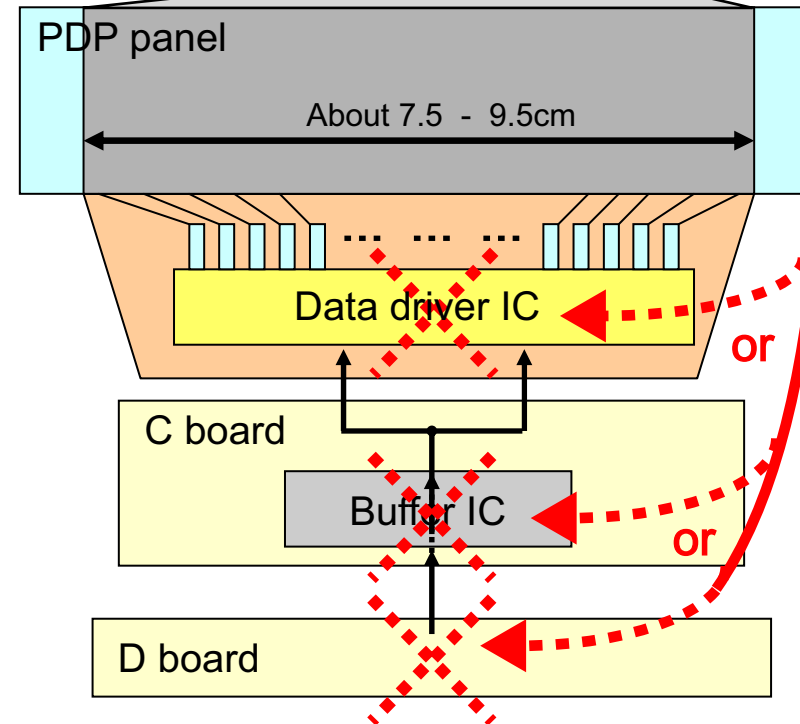
Width is same as FPC

Data driver IC defect= PDP panel defect

PDP panel

1 line defect

defect

PDP panel

About 7.5 - 9.5cm

Data driver IC

Data driver IC

C board

Buffer IC

C board

Buffer IC

D board

or

or

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[In case of V20, S20, U20, X20 series]

PDP panel defective (Data driver IC defective)
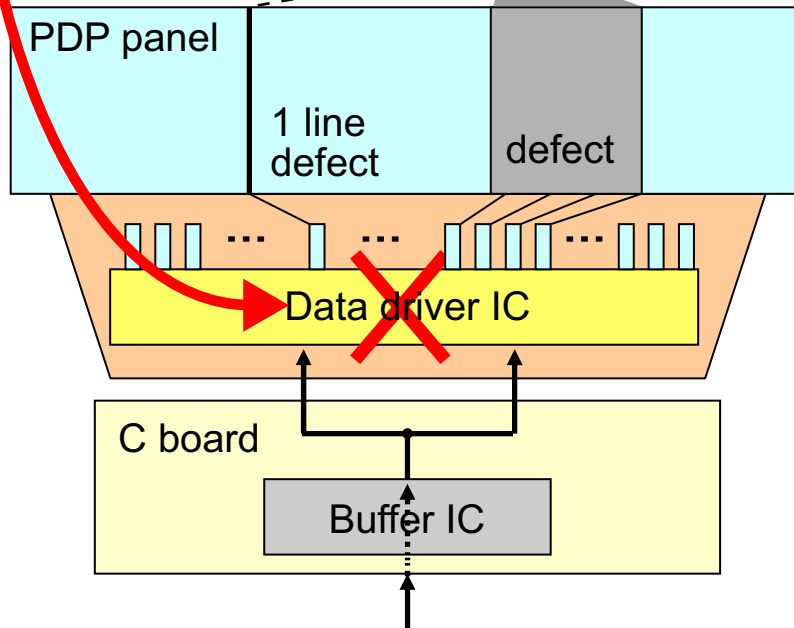
Data driver IC or C or A board defective

Width is narrower than FPC
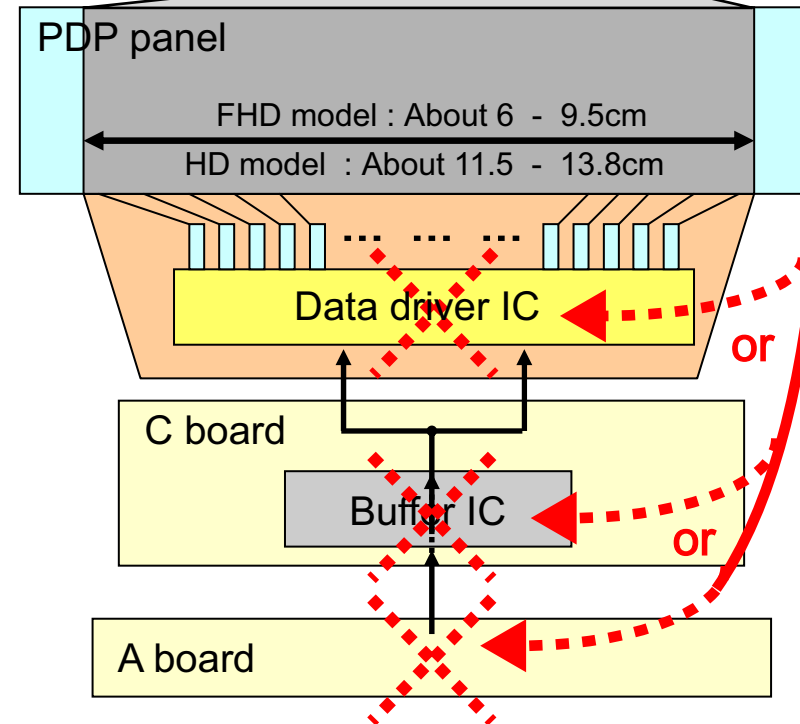
Width is same as FPC

Data driver IC defect= PDP panel defect

PDP panel

1 line defect   defect

PDP panel

FHD model : About 6 - 9.5cm
HD model : About 11.5 - 13.8cm

... ...

Data driver IC

... ...

Data driver IC

C board

Buffer IC

C board

Buffer IC

A board

or

or

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< Mirror function >

Mirror Function : Picture can be reversed left and right or up and down.

For vertical lines problems, this feature can help to determine if the problem is the A board or the panel.
If the position of the line/lines changes when performing this function, the A board is possibly defective.
The rear cover does not have to be removed to do this.
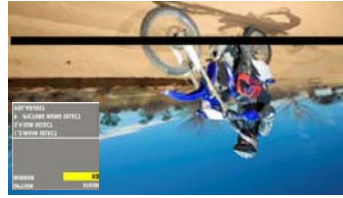
To enter the Mirror Function.

From the Service Mode Menu,　Press 1 or 2 to select "OPTION".
　　　　　　　　　　　　　　　　Press 3 or 4 to select "MIRROR".
Press the VOLUME up or down button to change the Mirror's data.

Data = 00　Default data (Mirror function is off).
Data = 01　Picture is reversed left and right.
Data = 02　Picture is reversed up and down.

<How to diagnose by using "Mirror function">
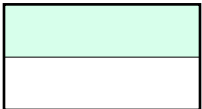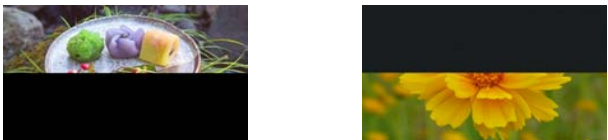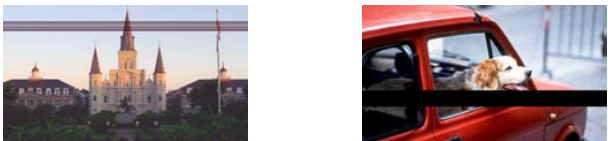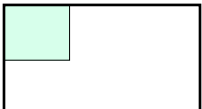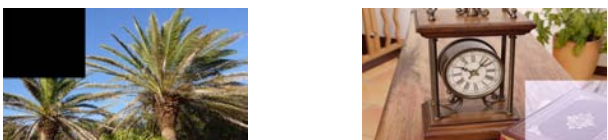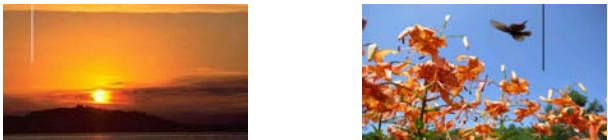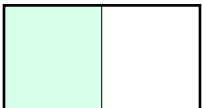
	Data : 00 ➡	Data : 01	
		the picture & line : reverse	only the picture : reverse
Vertical Line			
		Defective Block : A board	Defective Block : Panel or C board
	Data : 00 ➡	Data : 02	
		the picture & line : reverse	only the picture : reverse
Horizontal Line			
		Defective Block : A board	Defective Block : Panel or SD board *

* In case of 42inch HD model, SD board change to SN board. (SU board change to SN board.)
In case of 42inch FHD model, SD board change to SM board. (SU board change to SM board.)

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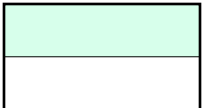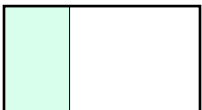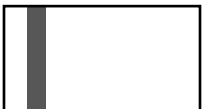
< Some part of screen (1/3) : VT20 series >

Symptom	Actual symptom		Defective board
Trouble in the Upper or Lower half			SU / SD
Horizontal line (Upper or Lower side)			SU / SD or panel
Trouble in the Upper Left or Upper Center or Upper Right or Lower Left or Lower Center or Lower Right part			C1-C6
Vertical line (Width is same as FPC)			C or D or PDP panel
Vertical line (Width is narrower than FPC)			PDP panel
Trouble in the Left or Right half			D
Regular bar			A
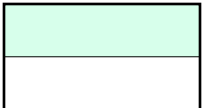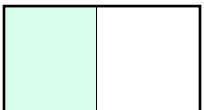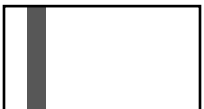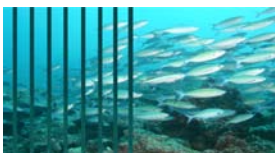
< Some part of screen (2/3) : V20, S20, U20 series >

Symptom	Actual symptom		Defective board
Trouble in the Upper or Lower half			Over 46inch : SU / SD 42inch : SM
Horizontal line (Upper or Lower side)			Over 46inch : SU / SD 42inch : SM or panel
Trouble in the Left or Center or Right part (46/42inch : Left or Right half)	Over 50inch	46/42 inch	Over 50inch : C1-C3 46/42inch : C1,C2
Vertical line (Width is same as FPC)			C or A or PDP panel
Vertical line (Width is narrower than FPC)			PDP panel
Regular bar			A

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< Some part of screen (3/3) : X20 series>

Symptom	Actual symptom	Defective board
Trouble in the Upper or Lower half		50inch : SU / SD 42inch : SN
Horizontal line (Upper or Lower side)		50inch : SU / SD 42inch : SN or PDP panel
Trouble in the Left or Right part		C1-C2
Vertical line (Width is same as FPC)		C or A or PDP panel
Vertical line (Width is narrower than FPC)		PDP panel
Regular bar		A

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\<Purpose\>

Test pattern is helpful in finding defective parts.
For example, if you see problems all over the screen (Picture Noise, Full Vertical Line,Abnormal color),
you can find signal processing problem or panel phosphor problem by using test pattern.

\<Model\>

VT20 series

\<Symptom\>

Picture Noise, Full Vertical Line,Abnormal color

\<How to enter the Test Pattern\>

1. Press the "VOLUME -" on the TV set,
   at the time push "INFO" button of
   remote controller 3 times.
2. After this procedure, you can enter
   "Service Mode" and select "AGING",
   then "Test pattern" will appear.
3. Push "3" button of Remote Controller
   to select the test pattern mode to forward.
4. Push "4" button of Remote Controller
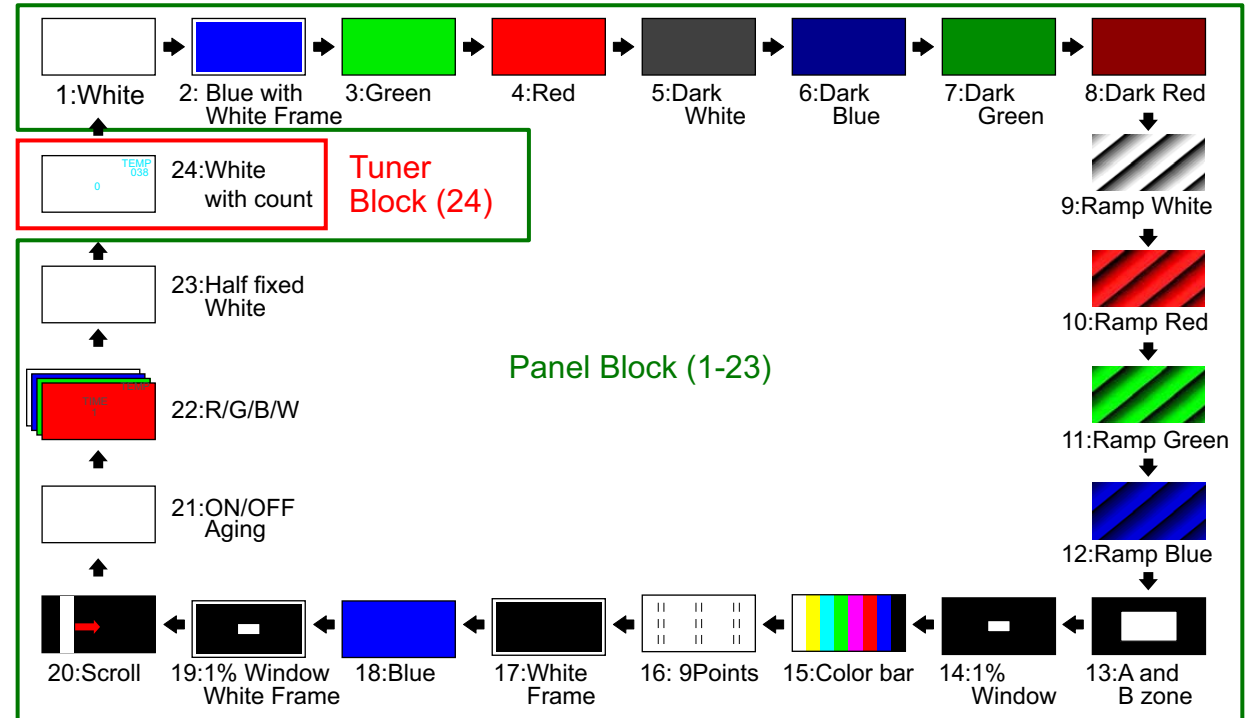   to select the test pattern mode to reverse.

\<Diagnosis\>

How to diagnose by using test pattern

\<Test Pattern (Normal)\>

1:White → 2: Blue with White Frame → 3:Green → 4:Red → 5:Dark White → 6:Dark Blue → 7:Dark Green → 8:Dark Red

9:Ramp White → 10:Ramp Red → 11:Ramp Green → 12:Ramp Blue

24:White with count — Tuner Block (24)

23:Half fixed White

Panel Block (1-23)

22:R/G/B/W

21:ON/OFF Aging

20:Scroll ← 19:1% Window White Frame ← 18:Blue ← 17:White Frame ← 16: 9Points ← 15:Color bar ← 14:1% Window ← 13:A and B zone

Abnormal picture (Picture Noise, Full Vertical Line,Abnormal color)		No picture	
Test pattern (1-23)	Defective Block (Board)	Test pattern	Defective Block (Board)
Abnormal	Panel Block (D Board or Panel)	No picture	Panel Block (D Board or Panel)
Normal	Tuner Block (A Board)	O.K	Tuner Block (A Board)

<Model>
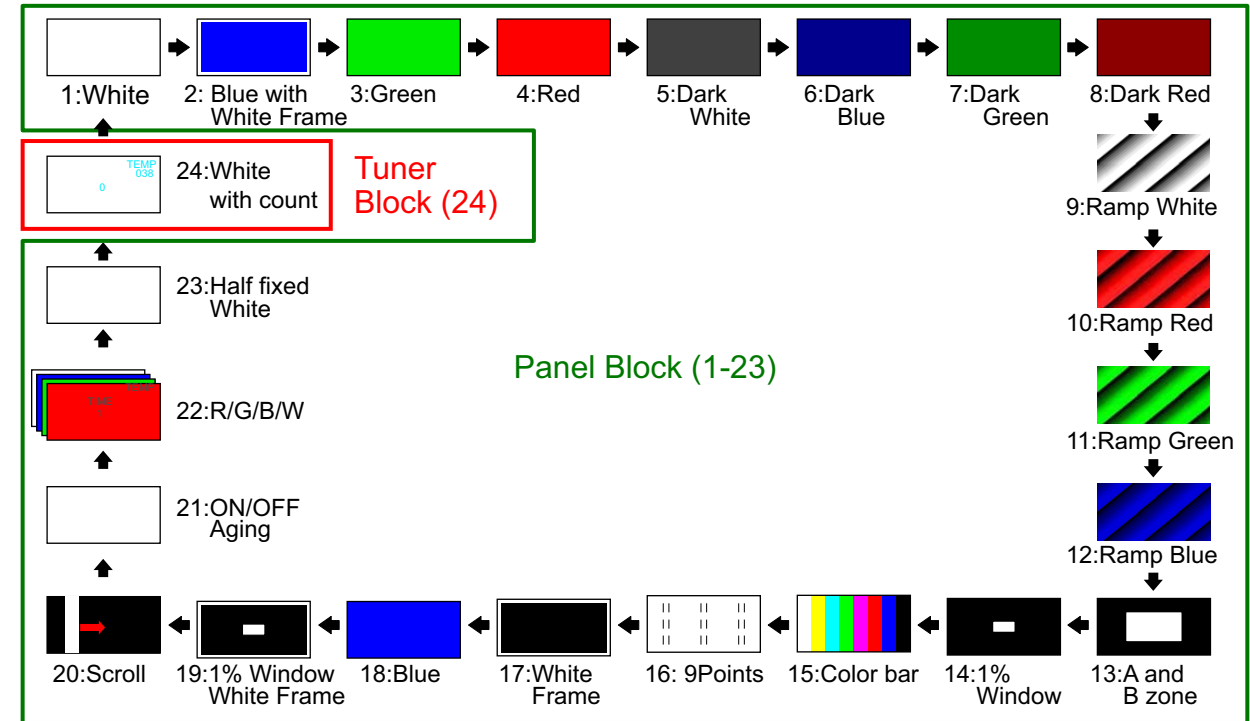V20, S20, U20, X20 series

<Symptom>
Picture Noise, Full Vertical Line, Abnormal color

<How to enter the Test Pattern>

1. Press the "VOLUME -" on the TV set, at the time push "INFO" button of remote controller 3 times.
2. After this procedure, you can enter "Service Mode" and select "AGING", then "Test pattern" will appear.
3. Push "3" button of Remote Controller to select the test pattern mode to forward.
4. Push "4" button of Remote Controller to select the test pattern mode to reverse.

<Test Pattern (Normal)>

1:White → 2: Blue with White Frame → 3:Green → 4:Red → 5:Dark White → 6:Dark Blue → 7:Dark Green → 8:Dark Red → 9:Ramp White → 10:Ramp Red → 11:Ramp Green → 12:Ramp Blue → 13:A and B zone → 14:1% Window → 15:Color bar → 16: 9Points → 17:White Frame → 18:Blue → 19:1% Window White Frame → 20:Scroll → 21:ON/OFF Aging → 22:R/G/B/W → 23:Half fixed White → 24:White with count

Tuner Block (24)

Panel Block (1-23)

<Diagnosis>
How to diagnose by using test pattern

Abnormal picture (Picture Noise, Full Vertical Line, Abnormal color)

Test pattern (1-23)	Defective Block (Board)
Abnormal	Panel Block (A Board or Panel)
Normal	Tuner Block (A Board)
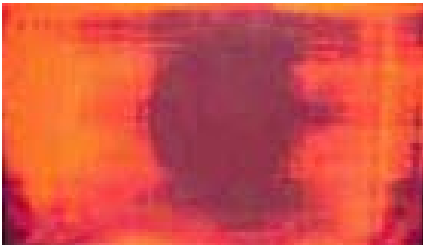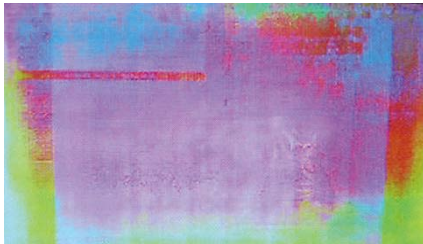
No picture

Test pattern	Defective Block (Board)
No picture	Panel Block (A Board or Panel)
O.K	Tuner Block (A Board)

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< All area of screen >

Symptom	Actual symptom		Defective board
Irregular Color			A
All vertical line			A
Abnormal electric discharge			SC / SS In case of P42X20 SN / SS